



DISCIPLINE ACADEMIC SHEET
ACADEMIC YEAR 2025 – 2026

1. PROGRAMME DATA

1.1. Higher Education Institution	UNIVERSITY OF CRAIOVA
1.2. Faculty	Automation, Computers and Electronics
1.3. Department	Computers and Information Technology
1.4. Field of Study	Computers and Information Technology
1.5. Study level	L(License / Undergraduate)
1.6. Organizational form	IF
1.7. Study Program (name/code) /Qualification	Computers / L2060101010

2. DISCIPLINE DATA

2.1 Discipline Name				Communication Protocols			
2.2 Course Activities Holder				Bărbulescu Lucian-Florentin			
2.3. Practical Activities Holder				Ciochiu Daniel			
2.4. Study Year	3	2.5. Semester	1	2.6. Evaluation type	E	2.7. Discipline regime	DOB

3. ESTIMATED TOTAL TIME (hours per semester of teaching activities)

3.1. Number of hours per week	4	in which: 3.2 course	2	3.3. sem./lab./pr.	0/2/0
3.4. Total hours of curriculum	56	in which: 3.5 course	28	3.6. sem./lab./pr.	0/28/0
Time distribution - hours/week					69 hours
Study after manual, course support, bibliography and notes					21
Additional documentation in library, on specialized electronic platforms and field					14
Training seminars / labs, homework, portfolios and essays					21
Tutorial					
Examinations					6
Other activities: consultations, student meetings					7
3.7. Total hours per individual activities					69
3.8. Total hours per semester					125
3.9. Number of credits					5

4. PRECONDITIONS (where appropriate)

4.1. of curriculum	• Computer Programming and Programming Languages, • Mathematical Analysis, • Physics I - General Physics, • Data Structures and Algorithms, • Electronic Devices
4.2. of competence	• Average knowledge of C programming language

5. CONDITIONS (where appropriate)

5.1. of the course	The course presentation is performed using the projector. For some explanations and answers for the questions received from the classroom the blackboard is used. The course material, presentations and additional bibliography is offered in electronic format
5.2. of seminar/ laboratory/project	Computers which allows the compilation and execution of C programs using MPLab IDE. Computers with USB interfaces connected to EasyPic 7 boards

6. COURSE OBJECTIVES – expected learning outcomes that are supported by completing and passing the course

Knowledge	Student/Graduate: - Describes, identifies, and summarizes basic concepts and methods related to communication protocols within communication networks, as well as their application to concrete problems. - Identifies and explains the fundamental concepts, theories, and methods of the communication protocols field.
Skills (Abilities)	Student/Graduate: - Uses specific methods of measuring electrical quantities and identifies digital and analog electronic devices used in data communication. - Analyzes systems using the theories studied and designs, implements, diagnoses and troubleshoots digital communication systems. - Uses specific theories and tools (applications, models, protocols, etc.) for the analysis, simulation, design and implementation of communication protocols.
Responsibility and autonomy	Student/Graduate: - Carries out processes in computer communication protocols, taking on different roles in the team and clearly and concisely describing the results, verbally and in writing. - Selects and analyzes bibliographic sources specific to the field. - Demonstrates autonomy in learning and addressing issues specific to the domain.

7. CONTENT

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7.1. Course	The method of implementation	Teaching methods	Allocated time (hours)
1. Distributed System Architectures	synchronous online	The course presentation is performed using the projector (for face-to-face activities) and the instruments offered by Google Education. For some explanations and answers for the questions received from the classroom the blackboard is used. The course material, presentations and additional bibliography is offered in electronic format.	2
2. The physical layer	synchronous online		2
3. Data and Signals	synchronous online / face to face		6
4. Data Transmission	face to face		6
5. Data Link Control Protocols	face to face		4
6. Serial Communication Standards	face to face		4
7. Universal Serial Bus	face to face		4
Bibliography:			
1. Barbulescu Lucian-Florentin (2025) – Communication Protocols, course slides			
2. Tanenbaum, A. (1981) - Computer Networks, Prentice-Hall			

3. Stallings, W. (2014) – Data and Computer Communications (10th Ed.), Pearson
4. White, C. (2015) – Data Communications and Computer Networks A Business User's Approach (8th Ed.), Cengage Learning
5. Axelson, J – USB Complete - The Developer's Guide (5th Ed.), Lakeview Research

7.2. Seminar/laboratory/project	The method of implementation	Teaching methods	Allocated time (hours)
1. RS-232 interface configuration	synchronous online	Presentations using the projector (for face-to-face activities) and the instruments offered by Google Education. Direct mentoring of the work formations	4
2. Serial communication between 2 PCs	synchronous online		4
3. Window mechanisms implementation	synchronous online		4
4. Error control mechanisms: Idle RQ	face to face		4
5. Error control mechanisms: Go-back N	face to face		4
6. Error control mechanisms: Sequence numbers	face to face		4
7. USB communication	face to face		4

Bibliography:

1. Barbulescu Lucian-Florentin (2026) – Communication Protocols, course slides
2. Tanenbaum, A. (1981) - Computer Networks, Prentice-Hall
3. Stallings, W. (2014) – Data and Computer Communications (10th Ed.), Pearson
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8. Correlating the content of the discipline with the expectations of representatives from the epistemic community, professional associations and representative employers in the field related to the program

The course presents the basic concepts and create the fundament for specific courses which are corelated to the labour market.

9. EVALUATION

Activity Type	9.1 Evaluation criteria	9.2 Evaluation methods	9.3 Final mark weight
9.4 Course	- Knowledge of the standards which governs the data communication - Knowledge of the physical interfaces involved in data communication - Knowledge of the algorithms used for error detection and correction	Written paper exam with several theoretical and practical questions	70%
9.5 Practical activities	S: -		

	L: - Understanding of the communication standards studied - Correct implementation of the required computer programs.	Grading during laboratory activity	30%
	Pr: -		
9.6 Minimum standard of performance (the minimum knowledge necessary to promote discipline and how to check the knowledge acquiring)			
- Elementary knowledge about the standards used in data communication - Elementary knowledge about the physical interfaces used in data communication - Minimum written exam grade: 5; minimum practical activity grade: 5; minimum final grade: 5			

Date of Completion	Signature of the Course Activities Holder,	Signature of the Practical Activities Holder,
23.08.2025	Conf. Dr. Ing. Lucian-Florentin BĂRBULESCU	Asist. Drd. Daniel CHIOCHIU

Date of Approval in the Department	Signature of the Department Director,
25.08.2025	Ș.l.dr.ing. Nicolae ENESCU

Date of Approval in the Faculty	Signature of the Dean,
	Prof.dr.ing. Dorin ȘENDRESCU